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CARL STUMPF

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Through the death of Professor Carl Stumpf on December 29, 1936, our science has lost a pioneer in the field of the psychology of music. Since he was eighty-eight years old when he died, he was able to devote a long life in the service of his chosen field and of the wider aspects of systematic and theoretical psychology. His maturing years gave fruition to a youthful enthusiasm for music which developed into a well disciplined empirical and ultimately an experimental approach. But in some ways a striking parallelism might be found between his academic wanderings geographically during the course of his career and his several mental excursions into a number of affiliated subjects. The devious path which started at Würzburg led finally to the University of Berlin where he achieved distinction during his active service lasting over a quarter of a century. So the winding intellectual road which began with music came at last to an end in the realm of a reasoned synthesis within the area of systematic psychology.

It is curious, however, that in the course of such wide and long experiences one strong and early influence apparently fell on relatively sterile ground. His father was a court physician. His maternal grandfather practiced medical jurisprudence while he tutored the young Stumpf during childhood and adolescence. Many physicians came from the neighboring university at Würzburg to make frequent visits to his early home at Wiesenthied in Bavaria. In his autobiography he speaks of knowing personally three doctors who were related to his mother and who were university professors. He says, "thus it may be that the love of medicine and natural science was in my blood." But when Stumpf later as a student came under the

influence of Lotze, the physiological problems and point of view were almost completely eclipsed by the impelling force of the sheer logic of science. This was as it should be. At that time Lotze was practically done with medical psychology after he had published his *Physiologische Untersuchungen* in 1853, and was steering a straight course down the lanes of philosophy. Stumpf crowned his own career by meticulously and steadily applying to the science of psychology the fundamental principles and concepts which Lotze envisaged for all science. Much of this work was consummated at the University of Berlin where Lotze had spent the closing months of his life.

Stumpf was born in 1848. After studying six years in the gymnasium he matriculated in 1865 at the University of Würzburg. He tried a semester each of aesthetics and of law—the latter in the interests of making the living which he felt he could not earn as a musician. During his second year he was brought under the spell of Brentano who persuaded him to obtain his doctorate degree with Lotze at Göttingen. Before this degree was awarded him in 1868, he had studied chemistry, physics, and physiology. But the mental stimulation of Brentano had been so great that not the sciences as such or even the psychology of Lotze as such, but the methodology of science as a new pathway to philosophy and in turn the possibilities of this type of philosophical approach to theology was the underlying motivation of Stumpf's later education. Brentano's thesis, that the method of the natural sciences was at once the true method of philosophy became Stumpf's lodestar. Lotze was himself much interested in the revitalization of philosophy and at this time was making steady progress toward an idealistic metaphysics which barely leaned on experimental data and empirically determined facts. In evaluating the life of Stumpf it should then be constantly borne in mind that in the back of his mind and behind his experimental efforts was the tradition of Lotze and Brentano: the fundamental matrix of all science and of all intellectual effort was a non-materialistic philosophy.

Würzburg once more became his academic home for further study during two years after the doctorate degree. Again under the influence of Brentano who was inveighing against the Pope, Stumpf fortified himself with still more philosophy and theology until he returned to Göttingen and Lotze as Privatdozent in 1870 for a period of three years. Then came his first psychological contribution concerning the mental origin of space perception. In the background were experimental studies on tactual perception and on the golden section in aesthetics with Fechner.

With the help of Brentano and Lotze and the reputation of his own contribution he became the successor of Brentano and once more returned to Würzburg as *ordentliche Professor*. Similar positions came to him in quick succession at the universities of Prague (1878), Halle (1884), Munich (1889), and finally at Berlin (1894).

Now music began to reassert itself. His father was an excellent singer and his mother a good pianist. He had learned to play the violin at seven years of age. Five other instruments, including the violoncello, had been mastered in the next decade. As a boy of ten he had tried his hand at composition, having produced the score and libretto for an oratorio for three male voices. He also composed string quartets and other pieces. After receiving his doctorate degree he was still performing on the violoncello in a private orchestra. As the years went on he played less but thought more of the possibilities of an experimental and empirical approach to music through the eyes of a psychologist. Music through the playing of Beethoven's superb *Trio in B Major* introduced him later to his prospective wife, and the piece became the "family trio." In the background, however, was still the commanding figure of philosophy, the mother of all science. For seven years he worked on the first volume of the *Tonpsychologie* which was published in 1883, and another seven years saw the completion of the second volume.

Thereupon a great blossoming forth of a career in the area of music in general and in particular primitive music took place. At times he was a theoretical and systematic psychologist. Experimentation on a large laboratory scale he probably never knew at first hand, but he was extremely sympathetic to this form of attack. His early recorded experiments in the field were mostly on himself and an obliging colleague or two. While Stumpf without question deserves the great credit of founding and continuing both the *Beiträge zur Akustik und Musikwissenschaft* (1898) and the *Phonogramm Archiv* (1900), he was eager to acknowledge his obligations to his young colleague, Dr. Erich M. von Hornbostel, who gathered many of the materials before his untimely death.

Among the honors that came to him were membership in the Academy of Sciences at Berlin, the National Academy at Rome, the National Academy of Sciences at Washington, the German Society of Experimental Psychology, and the National Institute of the Science of Music at Moscow. He became rector of the University of Berlin in 1907 and when he was eighty years old his bust was presented with appropriate ceremonies to the University. Five years

before this event he had given his last lectures and for seven years he had been retired from active duty. That year also marked the appearance of his last published paper.

But a narrative of Stumpf's individualism in its gradual development must be supplemented by an appraisal of his mature personality as I have known it through conversation, correspondence, and reading. At the core Stumpf was a disciple of Plato whose writings he thoroughly assimilated. In logical argumentation as illustrated in *Die Anfänge der Musik*, which I have had the pleasure of translating into English and which portrays not only a comprehensive knowledge of the world's music of all times and in all places but announces a clear psychological theory of the origin of music, as well as in almost a hundred other writings of his pen, Aristotle was his mentor. In demeanor Stumpf was a quiet and gentle soul, yet behind it all was a definiteness of aim and purpose. Back of it there were also the possibilities of emotional fire as shown by such episodes as his vehement controversy with Wundt.

Psychology has much to thank him for. Phenomenology and function, the revitalization of the mental act, the sponsorship of child psychology, and the attempts to give psychological insight to phenomena in the realm of unusual genius and the startling performances of trained animals—all these stand to his credit. His vision toward universal problems was broad in scope and deep in penetration. His collection of phonographic records of primitive music from all parts of the earth and his keen analysis of what they revealed as related to the history of civilized music will serve as a monument to his genius for all time to come. Psychologists the world over should fervently hope that the laboratory at the Psychological Institute in Berlin, which he created and which he stocked with the very best equipment for acoustical research, will some day again become as productive as it was when he left it.

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## CONDITIONED RESPONSES: A CLASSIFIED BIBLIOGRAPHY

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### INTRODUCTION

A common characteristic of C-R experimenters and writers is their inadequate acquaintance with the literature on conditioning. Lashley's salivary cups, reported in 1916, did not become known to Russian investigators until after 1926, when they had already been devised independently in Krasnogorsky's laboratory. In turn, American C-R publications are richly studded with duplicated 'discoveries' and 'would-be-new' theories and hypotheses. The American unfamiliarity may be attributed only in part to the unavailability of a portion of the C-R literature in languages other than Russian, since it holds true also for a large number of experimental reports and theoretical discussions published in German, French, and even in English. This geographical and linguistic isolation is, to be sure, largely a general limitation of contemporary science, but in conditioning it is no doubt further aggravated by the unusually wide scatter of the C-R literature.

The present bibliography is thus offered in the hope that it will lessen the existing gap between diverse conditioning literatures and stimulate C-R workers to read each other's writings. It contains 860 titles of original papers—from both Russian and non-Russian laboratories—published in non-Russian languages, and 251 Russian titles abstracted or reviewed in non-Russian languages. Of the original titles, 448 are in English, 196 in German, 166 in French, 21 in Italian, 8 in Spanish, 6 in Dutch, 4 in Polish, 3 each in Bohemian and in Portuguese, 2 in Hungarian, and one each in Finnish, Roumanian and Lithuanian. The Russian list is by no means complete. Lack of space forced the omission<sup>1</sup> of about 50

<sup>1</sup> The following items were in general excluded from the bibliography:  
(a) textbook discussions; (b) abstracts of Russian papers the originals of which appeared also in non-Russian languages; (c) more than one abstract of a Russian paper, English abstracts taking precedence over German or French; (d) preliminary reports to scientific societies when complete reports were published later.

meagerly abstracted titles, about 100 titles discussed in Pavlov's and Bekhterev's non-Russian books, and about 240 unabridged and unreviewed Russian titles. In all, the C-R literature totals to date about 1,500 titles—43% Russian, 30% English, 13% German, 11% French, and 3% in other languages—with about 60% of the Russian titles reviewed or abstracted. (If one adds the English, French, or German summaries usually given in Russian periodicals, the number of Russian titles totally inaccessible to the non-Russian reader does not exceed 5%.) It might also be worth mentioning that roughly about 60% of the experimental papers come from Russian and about 25% from American laboratories, and that from 1933 to 1935 the German ratio dropped from 15% to 5%.

The bibliography is confined to *typical* conditioning. Negative adaptations, a tubeworm ceasing to respond to repeated exposures to a shadow, breaking up of tropisms and reflexes, repeated faradizations causing a cockroach to cease running into a dark chamber, a frog to stop snapping at food, are not included here. Nor are included the usual discrimination experiments, in which the stimuli to be differentiated are presented simultaneously and the motivation is both reward and punishment. (Discriminations in which the stimuli are presented in succession and the motivation is reward or punishment are properly *typical* conditioning and are listed.) The numerous investigations on maze learning and verbal associations in human beings are of course excluded, although the few experiments and observations on animals' associations of human speech with objects or events—either in the laboratory or under natural conditions—have been retained.

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<sup>2</sup> These titles are grouped under 'Inhibition and Induction' because they are thus designated by their authors. The writer disagrees basically with the Pavlovian use of these concepts, believing them to be misnomers for most of the phenomena studied. He does not, however, feel justified to substitute a behavioral and operational terminology without an adequate discussion.

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## BOOK REVIEWS

LINK, HENRY C., *The Return to Religion*. New York: The Macmillan Company, 1936. Pp. 181.

*The Return to Religion* may be regarded from any one of three view-points. It may be considered as an apologetic by Dr. Link for a change in his religious views. It may be thought of as a brief apologetic for religion in general. Or it may be read as a discussion of the usefulness of simple religious concepts in clinical psychology. As a matter of fact is it a little of all three.

After describing the way in which his college studies caused him to break completely with his conservative bringing up and his childhood religion, the author states that he has recently made an about face and now realizes that there is a great deal of basic truth in what he was taught in Sunday School. This change of heart was brought about by his becoming aware that religion was a psychotherapeutic agent of importance. At first unconsciously, later deliberately, he put important psychological truths into Biblical phraseology and found that their effect was reinforced thereby. He became convinced that many principles which have been established by scientific psychological research were well known to wise men of old and have been succinctly stated in the Christian scriptures. His respect for the Bible and for Christianity was renewed and in some degree he returned to the allegiances of his youth.

Such a process as this occurs frequently as part of the ripening, the maturing, of middle age. Youth rebels against age and experience and in its haste to make the world over often sweeps away the wisdom of its elders and particularly that part of it which attempts to restrain adventurousness and unconventionality and to teach patience and hard work. As the years go by one may find that the more important loyalties are to mankind in general and not to a generation. If or when this occurs it is easy to become somewhat more conservative and more admiring of the humbler virtues. In so far Dr. Link's experience is not uncommon and his statement may be regarded with approval. It is clearly made and with restraint.

The value of religion as a clinical aid has long been recognized. Even those with far less clinical experience than has Dr. Link may agree with him heartily as far as his statement goes that religious

statements have power to encourage and comfort. This is sufficient justification for the use of such statements in consultation work and no apology is called for.

It is a somewhat different matter to assert that the clinical value of Biblical quotations proves the truth and reality of religion. It is true that Dr. Link seems to have a non-theological and even pragmatic view of religion. Yet when he says, "I see religion as an aggressive mode of life, by which the individual becomes the master of his environment, not its complacent victim," he is making a very debatable statement. Religion does not always produce this effect by any means. And when he claims that such quotations as "By works is faith made perfect" and "Faith without works is dead," are basic tenets of religion he makes an assertion which many scientific students may wish were true but which they must regretfully insist is not an accurate expression of religion of today or of any day. In effect, Link makes sturdy common sense and religion synonymous terms. Objections to such an identifying can be made both from the standpoint of the systematic theologian on one hand and hostile critics of religion on the other.

It is about this point and only about this point that the reviewer objects to the volume. Taken all in all it is a wholesome insistence upon the values of loyalty and patience and industry and independence in maintaining stable personality and high character. Dr. Link is quite right in insisting that one must depend upon oneself, that too much self-analysis and too much self-pity is harmful and should be replaced by definite action toward some goal, toward, in fact, any goal. But this has no particular reference to religion. A brief glance over the creeds or statements of belief of the various Christian denominations makes this all too clear.

Dr. Link says that he means by religion a belief in God, immortality, the Ten Commandments, the life of Christ, and the acceptance of the Church, whose services he feels that he must attend because they are dull and uninteresting, an odd view which could easily be extended to absurdity. After making these statements he has not a great deal to say about most of these beliefs, it is true. But his viewpoint ties up admiration for the high morality and unselfishness of Jesus and for his sane view of life with the immense amount of myth and ritual which in accumulation constitutes the religious doctrine of Christ. For the life of me I cannot see how Dr. Link, having written what he has, can logically refuse to accept the Biblical miracles or the orthodox theory of salvation.

To those who are convinced that religion sorely needs a thorough restatement it is a little discouraging to see with what small degree of astuteness Dr. Link has failed to discriminate between things which are very different. *The Return to Religion* will be quoted far and wide in support of a variety of reactionary views and beliefs in which, of course, Dr. Link has no interest. His scientific reputation is such that the chance of quoting him is far too good to miss and he will probably be considerably embarrassed more than a few times when he learns what he is supposed to have scientifically proved in his clinic.

As an aside I wish to express my strong disagreement with the identification of introversion with selfishness and extraversion with unselfishness. This is a very special and improper way of using these terms and is not at all Jung's meaning.

The book would have been more valuable if the author had been more critical in his estimate of religion and had clearly stated what he really meant. What he means to say is that there are immensely valuable truths to be found in many religious writings, which truths have been more or less discarded in our attempts to be rid of mere tradition and magic.

Two things are clear: Dr. Link is an able clinical psychologist; wisdom was not born with this generation; and the writings of our forefathers contain many truthful generalizations which still apply to life.

GEORGE ROSS WELLS.

*The Hartford Seminary Foundation.*

GUILFORD, J. P., *Psychometric Methods*. New York: McGraw-Hill Book Company, 1936. Pp. xvi+566.

Occasionally a textbook appears that is different and Professor Guilford's book differs from the usual text on statistical method in three respects: in its inclusiveness, in supplying a rather complete description of the experimental procedures employed in securing the data for the examples, and in relating modern statistical techniques to psychophysical methods.

In addition to the presentation of the usual statistical techniques, a lengthy chapter is devoted to an excellent discussion of factor analysis. About half of the book is devoted to psychophysical methods and to methods of "psychological scaling."

The style is simple and clear and the author seems to have accomplished his stated purpose of writing the book for first year graduate

students who have had only college algebra. Practically all derivations have been omitted since the volume is frankly concerned with applied statistics. That Professor Guilford's true love is psychophysical method rather than statistics is revealed by the detail devoted to the history, assumptions, pitfalls, and applications of these methods. In contrast these aspects of the various statistical methods receive rather scanty treatment, with two notable exceptions, the topics of correlation and factor analysis.

A novel and interesting feature of the book is the presentation of the photographs of twelve pioneers in psychometry, including the following Americans: Cattell, Kelley, Terman, Thorndike, and Thurstone.

The author's treatment of the method of average error may be cited as an example of the means he employs for illustrating realistically the necessity for and the use of statistical techniques. First the problem of the extent of the Müller-Lyer illusion is presented. The apparatus is then described, followed by a detailed account of procedure and a complete set of raw data. Using the data of this experiment, possible methods of analysis are described, their advantages and limitations discussed, and methods of computation illustrated. This general method of presentation has been used throughout the section on psychophysical methods. It is unfortunate that this teaching technique was not employed in the other two sections of the book.

The quality of explanation varies considerably from chapter to chapter but is on the whole excellent. Outstanding chapters are the ones on "Constant Methods," "The Method of Paired Comparisons," "Elements of Curve Fitting," "Simple Correlation," and "Factor Analysis." The chapter on mental test methods while good, suffers somewhat from the uncritical presentation of the methods of item analysis. The chapter on the method of average error (Chap. 2), commendable for its use of experimental background, suffers from the presentation of too much material in so short a space. In this chapter of forty-seven pages the following statistical techniques are presented: mean, median, mode, average deviation, standard deviation, the reliability of statistical constants, reliability of differences, and combinations of sets of data. In addition, a detailed example of the method of average error is presented together with a discussion of the applications of the method. There is in this chapter, also, a tendency to discuss the data in terms of functions that have not yet been developed. For example, on page 36, in discussing a frequency

polygon, the terms mean, bimodal, dispersion, and normal curve are all used, yet the terms are not defined until several pages later.

An excellent feature of the book is the thirteen tables presented in the appendix. The veritable mine of information which the book contains is made rather accessible by means of an eight page subject index and a five page author index. It is sincerely hoped that Guilford's index will set a precedent for future authors of statistical textbooks. Extensive, though of course not exhaustive, bibliographies are given at the end of each chapter.

In a text that so frankly claims to be a book on applied statistics, one is surprised that more consistent attention has not been given to methods of computation. Only in the psychophysical section and in the treatment of multiple correlation is adequate attention given to computational procedures. Although many admirable charts for reducing the labor in computing correlations are available, none of these are mentioned and the author still requires the student to get the  $f_{xy}$  value for each cell. This seems inexcusable. In general, references to computational aids such as nomographs, abacs, and tables, suitable for specific formulas, have been omitted except when the material is presented in the book.

Remarkably few points to which objection can be brought appear in this book. There are, however, a few points that should be called to the reader's attention. A frequency polygon, on page 34, described as bimodal, might equally well be described as trimodal. A defect appears in this figure, as well as in several later figures, in that the x-axis is not broken to indicate that certain classes have been omitted. A normal curve is fitted to this polygon and the reader is told that this is the curve that would be found "if we had made thousands of measurements instead of two hundred." This of course depends on the nature of the universe from which the sample was drawn. Such a statement must rest either on *a priori* knowledge or be assumed. Since the student presumably has no knowledge of the nature of the universe, this is an assumption and should be so stated. That there is some confusion or carelessness in the distinction of sample and population values is shown by the statement on page 45, "it is well to remember that the mean, the standard deviation and the probable error belong to the smooth theoretical curve rather than to the actually obtained distribution." These values are functions of the observed data and to generalize from the computed values of  $M$  and  $\sigma$  to population values is definitely at the experimenter's risk.

While the treatment of reliability of statistical constants is good, again no clear distinction is made between sample and population values. The explanation of the significance of a difference and of its use is very well done. Although Guilford perpetuates the prevalent error of referring to non-critical ratios of differences to their standard errors as Critical Ratios, he is to be commended for introducing the notation  $CR_\sigma$  to indicate that the ratio is  $D/\sigma_D$  rather than  $D/PE_D$ . Like many others, in testing for the significance of a difference the author assumes the mean of the distribution of differences to be observed difference. On the contrary the hypothesis that should be tested is, if the differences are normally distributed around a mean difference of zero, what is the likelihood of a difference as large as the observed difference being due to chance? Of course, numerically the results are identical.

The chapter on the normal curve is one of the best this writer has seen. There is, however, an unfortunate error in the interpretation of chi square. In the example on page 92, there are eleven classes; thus ten are independent and one dependent, so that the degrees of freedom are ten, not eleven as used in entering Fisher's table. This use of  $n$ , the number of classes, instead of  $n$ , the number of degrees of freedom, occurs in all but one case in the book and probably is due to the cumbersome notation used with Elderton's table. Of minor importance is the fact that he refers consistently to Fisher's table as Pearson's when by Pearson's table is meant Elderton's table, as he himself points out.

In the discussion of tetrachoric correlation the formula has been omitted on the plea that it is long and difficult to compute, and the reader is rightly referred to Chesire, Saffir, and Thurstone's computing diagrams. This, however, is small comfort to the worker who has to compute a tetrachoric correlation and for whom the tables are not available.

There are a few other minor points in error. In a discourse of this length there is certain to be a number of theoretical points subject to individual interpretation. These are matters of opinion and as such should not be mentioned specifically at this place.

For a long time there has been a need for a lucid and accurate treatment of psychometric methods, including in one book psychophysical and statistical techniques. Teachers and students are therefore indebted to Professor Guilford for his work in presenting, organizing, and interpreting these various methods.

JACK W. DUNLAP.

*Fordham University.*

HUNT, THELMA, *Measurement in Psychology*. New York: Prentice-Hall, Inc., 1936. Pp. xx+471.

The entire field of measurement in psychology is discussed in this volume. Sample items from representative tests are given, and the practical use of tests is considered. The scope of the book can be indicated by briefly reviewing its table of contents. The measurement of intellectual qualities is discussed under the headings of the measurement of mental deficiency, superiority, the insane, and the use of intelligence tests. Under the measurement of aptitudes, attention is given to special talents, mechanical ability, aptitude for vocations and professions, and interests. The next three chapters consider the measurement of achievement in public schools, in professional schools, and in jobs. Then four chapters are devoted to measurement in industrial and personnel fields. Here one finds a brief discussion of the construction of tests for employment purposes, and the use of such tests in the selection and control of employees. The next seventy pages are devoted to the measurement of the more general traits of personality: social attributes (social intelligence and social maturity), emotions by verbal tests (Woodworth-Cady and derivatives, Pressey X-O, Cason annoyance, *et al.*), and character. The last five chapters have to do with physiological measurements in psychology: fatigue, laboratory tests in mental disorders (blood, spinal fluid, and metabolism tests), glandular functions tests, emotions, motor and sensory functions.

The avowed aim of the author is "to give a brief survey of the entire field of measurement in psychology." The reviewer admits that this aim has been achieved, but he fears that all too often brevity degenerates into superficiality. This is not a fault necessarily of the exposition, but rather of the attempt to include too much in one volume. This raises the question as to the place and value of a survey type text in a field where too much bungling has already been done by self-appointed testers who have little fundamental knowledge concerning fallibility of tests; opinion may differ here. Those who feel a need for a text which surveys, in simple non-technical language, the field of measurement in psychology will find this book useful. Those who prefer to use a text which stands on its own, *i.e.* needs little critical qualifying, will find it inadequate.

A few specific examples may serve to illustrate the type of thing to which the critical reader may very well object. On page 126 the statement is made that "fitness for work is determined primarily by four factors." Has this been demonstrated, or is this one of many broad generalizations that are so broad as to lose meaning? Should

the accomplishment quotient (p. 223) be presented without a word concerning its fallacy? Can it be that "questionnaire methods, . . . usually lack reliability" (p. 332) and also "have usually been found to be reliable" (p. 361)? The first statement is made after discussing such questionnaires as the Allport ascendancy-submission scale, and the second after discussing such questionnaires as the Bernreuter dominance scale. On page 362, a ray of hope is expressed for adjustment scales because such scales "show fairly high agreement among themselves," and the cited evidence is a correlation of .94 between the Bernreuter neurotic scale and the Thurstone Personality Schedule, and an  $r$  of .75 between Bernreuter introversion and Laird introversion. Doesn't it matter that these two Bernreuter scales depended upon the other two for validation?

With regard to the relative emphasis on various procedures and tests, one wonders whether there is any basic reason why a social intelligence test should have as much space as the Binet test, and whether hormone tests of pregnancy are of as much interest to psychologists in general as are tests of memory.

QUINN McNEMAR.

*Stanford University.*

HIGGINSON, GLENN D., *Psychology*. New York: The Macmillan Company, 1936. Pp. xiii+646.

Professor Higginson's *Psychology* presents a modified Gestalt approach to the problem of human nature. Your reviewer would catalog the presentation an organismic psychology, but Dr. Higginson may not care to be pigeon-holed so neatly. He does not name his point of view. To him man is an emergent in the evolutionary series and, as such, presents certain emergent functions which are wholly irreducible and utterly unanalyzable. Man's functional relation to his world of objects gives rise to psychological properties. Not to be led into such futile questions as "Where is color?"—in the object or in the man; his eyes, his optic nerve, or his muscle twitching, Dr. Higginson stoutly and consistently maintains that color, along with size, shape and distance, is a psychological property of the object. As such it is susceptible to scientific study on the same basis with the physical properties that objects also possess. He is impatient with the subjective-objective approach that would make psychological products functions of the subjective mind. All perception is illusory

in the sense that the eye gives lie to functions of touch and both of these may appear illusory when some other measuring stick is applied to the objects (p. 254).

Man does not react to stimuli, but rather to meaningful objects. Stimuli may be causes but their products are physiological functions which are not, of course, psychological phenomena; but they are not identical with them. Physiological functioning is not identical with emotion, for instance; cone functioning is not the same as color vision. Objects are meaningful from the very beginning. An infant does not have to learn that bitter substances are bitter; they are bitter from the beginning (pp. 112, 509). One does not have to learn that objects have the psychological property of distance. The time interval in some experiments is far too short to allow for an *inference* of distance based on kinesthetic sensations (p. 150). "Distance is quite as elementary a property as color" (p. 158). As such, both space (p. 159) and movement (p. 166) are "quite irreducible and wholly unique."

Psychological functioning is dependent upon the heredity, the past personal history of the person, and the objects of his world.

Professor Higginson believes that it is necessary to accept instinct as an explanation in order to understand these functional products (p. 78), but he offers reasons for rejecting some activities that have been labeled instinctive historically. He recognizes that some acquired needs and desires may actually be made stronger than the innately determined sorts, but he feels that man's phylogenetic heritage . . . "stands at all times a primary determiner . . ." of his functions (p. 127).

In common with the irreducibles of so many other systems of psychology if one does not know what memory, imagination, thinking and emotion are, he will not find an answer in this text. By their very nature, as presented, these functions are all essentially irreducible "givens."

In his treatment of thinking it appears to your reviewer that the author does especial violence to the facts of physiology and to his own organismic position. So far as I am aware, there is never activity in any single one of the artificial segments into which for descriptive purposes an organism is divided. One would argue from this standpoint in defense of an organismic doctrine in any event. Still we find that the author holds, "Normally, the brain functions in thinking as in perception, memory, and imagination without involving the effector system. Man thinks with his brain and not with his

"muscles" (p. 466). That a large brain rather than large muscles is characteristic of man seems to me to be a particularly crude notion of the nature of man's specialization. That "education seeks primarily to improve man's cortical functions—not his muscular activities" (p. 466) is hardly more than an acceptance of a crude figure of speech. One might take exception, as an hypothesis, to the expressed position that by increasing the extent of a person's vocabulary he might not thereby increase his ability to reason (p. 466). But then, the author minimizes the efficacy of language generally in several different places in his text. He fails entirely to distinguish between language and speech (p. 465), a necessary discrimination in your reviewer's opinion.

Intelligence, learning, and personality are neither faculties nor processes. I take it that they are inferences from the functional modes which can be directly observed. The author feels that intelligence is a useful concept if used with discretion.

With most of his psychology, your reviewer is in perfect accord; but his mode of expression I find somewhat cumbersome and to a typical undergraduate I fear the entire text would border on the incomprehensible. As teaching aids, apparently, each chapter is outlined in detail and there are frequent summary paragraphs as well as introductory overviews. But these study aids do not appear to me to be sufficiently integrated with the material. They are further negated by the sudden introduction of names and concepts for which the student is not prepared. Freud, for example, is introduced by a critique of his position (p. 81) and an evaluation of his contribution to psychology of such depth as to require several days' preparation for any significant understanding of what the author says. Still, in other places (p. 580), he enters into very elementary concepts in ways that presuppose no preparation.

Any of the undergraduates that I have known would find this a dull book. It fails principally in its lack of integration of new materials and viewpoints with what the student already knows. As a treatise on systematic psychology the instructor will find the book of considerable interest. He will undoubtedly acquire several new viewpoints which will be of value to him, as they are to the reviewer; but he will have to read with an understanding that the typical undergraduate does not command.

W. L. VALENTINE.

*The Ohio State University.*

BUTLER, J. R., and KARWOSKI, T. F., *Human Psychology*. New York: Pitman Publishing Corporation, 1936. Pp. xvi+447.

*Human Psychology* is an introductory text adapted for use in elementary psychology classes. Its fifteen chapters are organized in much the same sequence as characterizes most psychological texts. Following is the order of treatment of the several topics: (1) definition and methods of psychology, (2) inherited reactions, (3) intelligent behavior, (4) nervous system, (5) simpler senses, (6) audition and equilibration, (7) vision, (8) perception, including visual space perception, (9) other forms of perception, (10) attention, (11) learning, (12) retention, (13) thinking, (14) motivation and emotion, (15) experimental esthetics.

The authors champion an eclectic point of view, having no particular "isms" to promulgate. In their description of learning they have even found it possible to bring together under one interpretation such widely divergent views as are found in the conditioned response and Gestalt theories. They have not endeavored to restrict the discussion to human behavior, and in nearly every chapter facts from the animal laboratory have been introduced in the descriptions of human response.

In several instances the book clings to the use of certain concepts of the older psychologies in the face of a general movement of modern texts away from these uses. For example, psychology is said to have resulted from the application of the scientific method to the human "mind." In another instance, it is said the "attention" is held upon a central topic by a fiat of the "will." This careless use of substantive forms is not characteristic of the book, for in the development of most topics the descriptions are rich in words dealing with response, activity, function, adjustment, etc. No doubt psychology long will continue using many of these familiar terms because they short-cut what otherwise would be rather long verbal circumlocutions. However, inasmuch as the beginning student very often has hit upon incorrect interpretations, a short description of each concept at its first appearance materially assists him in correcting his wrong notions. The authors have not given a description of the formation of concepts concerned with psychological activity, and the short explanation they give of concept formation in general is placed so near the end of the book as to give little assistance to the student in his struggle to correctly understand and use such terms as mind, intelligence, consciousness, the unconscious, and so on.

In the discussions of man's native equipment the term instinctive is used synonymously with innate or inherited. Instincts then are found to be present and to play an important rôle in both man and animal behavior. Placing such a broad interpretation upon the term completely eliminates what little usefulness it has retained since the "instinct controversy" arising out of the behavioristic interpretation. The frequent use of the term in this book is quite opposed to the tendency of recent psychology books to discard instincts in discussions of human behavior. Although appearing under the general caption of "man's native equipment" the discussion of intelligence revolves about the usual familiar topics found in elementary texts. In the chapter on the nervous system structure is subordinated to function, with the inclusion of such topics as synaptic conduction, the synapse in learning, allied and antagonistic reflexes, inhibition, higher level coördination, and localization of function. Although the reflex doctrine is emphasized the student is clearly told it is an oversimplified abstraction and has a very limited usefulness in an explanation of the nervous basis of complex behavior. Here and there throughout the chapter there is a need for citing empirical evidence from the clinical and experimental literature. Very adequate descriptions are given of the different types of sensory experience in chapters five, six, and seven. In general the physiological aspects are not given undue consideration. Theoretical interpretations, with their evaluation, are introduced in the descriptions of auditory and visual experience. The development of the duplicity theory in explaining visual experience is particularly good.

Under the title of observation are included chapters dealing with visual perception, auditory, and other types of perception and selectivity or attention. It is pointed out that sensation, perception, and selectivity are not actually separate processes in behavior but are three phases of a continuous activity. This prompting of the student away from a too literal use of the convenient abstractions of psychology is very frequently omitted in elementary texts. No separate discussion of the nature of meaning is given.

The key to the descriptions of the nature of learning and thinking lies in the principle of partial identity, a modern restatement of Hamilton's principle of the reintegration of identical elements. Conditioning is explained as resulting sometimes from the partial identity of the stimulus pattern but more likely from the partial identity of some relational aspects. This "identity of relational aspects" or

"identity of pattern" enables the authors to introduce Gestalt theory under the partial identity principle. Separate explanations in terms of the principle are given of positive adaptation, negative adaptation, and facilitation. Trial and error is considered as merely descriptive, adding nothing to the understanding of the law of learning and thinking. Insight is duly considered but the task of explaining its nature is avoided.

Motivation and emotion are discussed in chapter fourteen. Organic needs, the vegetative nervous system, and the endocrine glands are described as important in an understanding of motive, but no attempt is made to describe systematically any of the more socialized motives which, after all, are the ones the student is required to deal with. The treatment of emotion is so spatially restricted that much that is important is omitted. The James-Lange theory, in some form, is said to be acceptable to the majority of psychologists. No attempt is made to introduce more recent theoretical interpretations. The last chapter on experimental esthetics is a worthy attempt to introduce this subject to the beginning student. However, little success can be achieved in so short a space as the authors have chosen to utilize.

Certain limitations of the book are to be found in its omissions. As is the case in most elementary textbooks, the field of abnormal psychology is entirely neglected. No separate topic is devoted to the subject of personality, and outside of the discussions of "man's native equipment" and the "ductless glands" all direct references to personality when summed together would fill less than half a page. If the recent trend in the field of individual differences can be used as a significant index, then the omission of a discussion of personality is a serious defect of the book. Statistical methods are not adequately discussed. Correlation is introduced and explained in the chapter on intelligence but for other statistical constants the reader is referred to references at the end of the chapter. Although the practical applications of the science of psychology are stated by the authors to be one of the functions of a general text, a relatively small number of applications are clearly pointed out to the student. Especially could applications be more numerous in the direction of mental hygiene and efficiency of study.

As a text for elementary classes the book has several commendable features. Each chapter is introduced with a short statement linking it with what has gone before and previewing what is to follow. The

topics within a chapter are separately titled. There is a copious use of explanatory and descriptive footnotes. Throughout the book conclusions and summary statements are given, assisting the student in his effort to select the important material that has been presented. A list of pertinent references follows each chapter.

CLARENCE W. BROWN.

*University of California.*

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## NOTES AND NEWS

THE postponed Eleventh International Congress of Psychology will be held at Paris, July 25 to 31, 1937. All correspondence concerning the meeting should be addressed to M. I. Meyerson, General Secretary, Laboratory of Psychology of the Sorbonne, Paris (5).

The meetings of the Congress will include: (1) *Symposia*, each including two reports of 20 minutes each, followed by five minutes discussion. Papers should not exceed 4,800 words. (2) *Conferences* of 40 minutes each, led by outstanding psychologists in various fields. Summaries (not over 4,200 words) of papers should reach the secretary by May 1, and papers will be published in full in the proceedings of the Congress. (3) *Round Table Conferences*. The following men have accepted chairmanships of the various Round Tables and will give reports: Ed. Claparède; H. Berger and Adrian; H. S. Langfeld; E. Morselli; A. Gemelli and M. Ponzo; Krueger and Lapicque; and Spearman. (4) *Contributed Papers*. Papers should not exceed 200 words, and should reach the secretary by May 1.

An exhibit of psychological apparatus, tests, and other materials will be held in connection with the Congress.

The Société des Voyages Duchemin-Exprinter, 26, Avenue de l'Opéra, Paris (I<sup>e</sup>r) has official charge of hotel reservations in Paris. Arrangements can also be made through their American office, 22 East 60th Street, New York City, New York.

DR. WAYNE DENNIS, of the University of Virginia, has been appointed visiting professor of psychology at Clark University for the academic year 1937-1938. He will offer work in child psychology and social psychology.

DR. ROBERT H. BROWN has been appointed assistant professor of psychology and philosophy at Clark University, beginning with the opening of the next academic year, 1937-1938. His special interest is in the field of experimental psychology. He will also offer an introductory course in philosophy for the undergraduate students at Clark.

BEGINNING with the July-September issue, the editor of the *Journal of Abnormal and Social Psychology* will be Professor Gordon W. Allport of Harvard University. All manuscripts, books and notices should from now on be mailed directly to him, since the publi-

cation of the April-June number will be entirely from materials already in hand.

*The attention of the Members of the Midwestern Psychological Association is again called to the fact that the dates of the Twelfth Annual Meeting at the University of Illinois, Urbana, Illinois, have been changed from April 23 and 24 to May 7 and 8.*

THE seventieth birthday of Dr. Adolf Meyer and the beginning of his twenty-fifth year as director of the Henry Phipps Psychiatric Clinic of the Johns Hopkins University Medical School will be celebrated on April 16 and 17.—*Science*.

THE new *Journal of Consulting Psychology*, published by the Association of Consulting Psychologists, Inc., made its first appearance with the January-February issue. Members of the Editorial Committee are Douglas Fryer, New York University; Katherine G. Ecob, New York State Committee on Mental Hygiene; Henry E. Garrett, Columbia University; Miles Murphy, University of Pennsylvania, and Gladys C. Schwesinger, Commission on Human Relations, Progressive Education Association. Manuscripts, general correspondence in regard to contributions, and publications intended for notice or review should be sent to the Managing Editor, J. P. Symonds, 525 West 120th Street, New York City. Business correspondence should be addressed to the Business Manager, Warren G. Findley, Cooper Union, New York City.

The *Journal* will publish results of research having a bearing on the applications of psychology, short articles and communications relating to professional psychological service, reports of the activities of the Association of Consulting Psychologists and other organized groups of professional psychologists, information relating to resources available to members of the profession, and critical reviews of recent literature. Contributions are invited from workers in all fields whose work is significantly related to applied, professional psychology.

THE ninth annual meeting of the Society of Experimental Psychologists was held at Smith College, March 25 and 26, under the chairmanship of Professor Kurt Koffka. The next meeting will be held in the spring of 1938 at the University of North Carolina, Chapel Hill, under the chairmanship of Professor J. F. Dashiell.

AT THE meeting of the Society of Experimental Psychologists, the second award of the Warren Medal was made to Professor Karl Spencer Lashley of Harvard University "for his distinguished work on the physiological basis of learning and on the neural mechanisms involved in vision."

THE Section of Psychology of the Michigan Academy of Science, Arts, and Letters, met on Friday, March 19, at the University of Michigan, Ann Arbor, Michigan. Professor L. L. Thurstone of the University of Chicago delivered a lecture on *Isolating Primary Factors of Intelligence*, and participated in an informal panel discussion on the topic, *Practical Aspects of Isolating Primary Factors*. In addition, the following program was presented:

FRIDAY MORNING, MARCH 19, 9:00 O'CLOCK

*Differential Pitch Sensitivity Relative to Auditory Theory.* CHARLES C. IRWIN, University of Michigan.

*Form Discrimination as a Learning Cue in Infants.* BING-CHUNG LING, University of Michigan.

*Form Abstraction in Children.* CHARLES H. CRUDDEN, University of Michigan.  
*Some Experimental and Clinical Applications of the Technique of Continuous Free Association.* HOWARD Y. McCLUSKEY, University of Michigan.

*The Detroit Advanced Intelligence Test Compared with the Stanford Revision of the Binet-Simon Tests.* HENRY FEINBERG, Jewish Social Service Bureau, Detroit.

*Behavior Diagnosis.* HARRY J. BAKER, Detroit Psychological Clinic.

*Michigan Publications in Psychology, 1930-1936.* ELIZABETH M. CUNNINGHAM, University of Michigan.

FRIDAY AFTERNOON, MARCH 19, 2:00 O'CLOCK

*A Demonstration Exposure Apparatus.* BURTON THUMA, University of Michigan.

*Experimental Neurosis in Animals.* NORMAN R. F. MAIER, University of Michigan.

*Variations in Speed, Accuracy and Effort in Tasks of Aiming and Number Comparison.* EDWARD B. GREENE, University of Michigan.

*Psycho-technical Problems of Examining Traffic Offenders.* LOWELL S. SELLING, Psychopathic Clinic, the Recorder's Court, Detroit.

*A Study of Personality in Young Children by Means of a Series of Rating Scales.* KATHARINE E. ROBERTS, Merrill-Palmer School.

THE Society for the Psychological Study of Social Issues was organized at the Dartmouth meeting of the American Psychological Association. The Society plans to encourage research upon those psychological problems most vitally related to modern social, economic, and political policies and to help the public and its representatives to understand and to use in the formation of social policies contributions from the scientific investigation of human behavior. New members must be endorsed by two present members of the Society, and elected by the members at the annual meeting, after nomination by the council.

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